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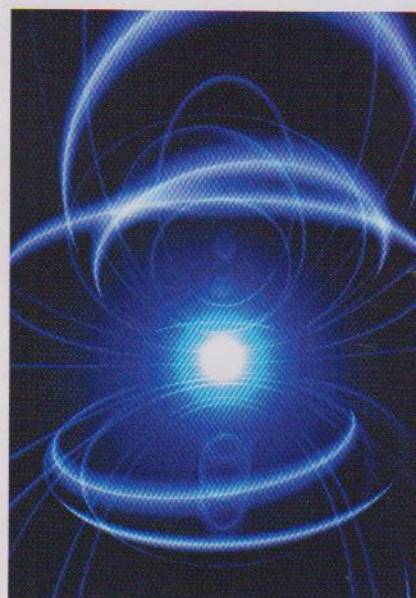
## BREVIA

- 642 Vanadium Nitrogenase Reduces CO  
C. C. Lee et al.  
An enzyme that reduces nitrogen to  
ammonia can also reduce carbon monoxide  
to hydrocarbons.

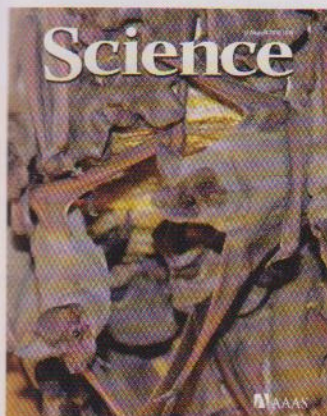
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## COVER

Mexican free-tailed bats roost at Bracken Cave near San Antonio, Texas. Streicker *et al.* (p. 676) describe how the spread of new forms of rabies virus is restricted between bat species; Frick *et al.* (p. 679) explain how a fungal disease of bats, white-nose syndrome, is likely to lead to local extinctions of once-common bat species.

Photo: © Merlin D. Tuttle, Bat Conservation International, [www.batcon.org](http://www.batcon.org)

## DEPARTMENTS

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## RESEARCH ARTICLES

- 642 **High-Resolution Analysis of Parent-of-Origin Allelic Expression in the Mouse Brain**  
C. Gregg et al.

A large repertoire of genes shows preferential expression of the paternally or maternally inherited allele.

>> Perspective p. 636; Report p. 682

- 646 **Role of Secondary Sensory Cortices in Emotional Memory Storage and Retrieval in Rats**

T. Sacco and B. Sacchetti

An emotional memory gradually becomes widely distributed throughout the cortex.

## REPORTS

- 656 **Normal Modes and Density of States of Disordered Colloidal Solids**

D. Kaya et al.

The motion of colloidal gel particles is used to determine the mechanical and thermal properties of a disordered system.

- 659 **Massive Dirac Fermion on the Surface of a Magnetically Doped Topological Insulator**

Y. L. Chen et al.

Adding magnetic atoms to a topological insulator breaks its time-reversal symmetry.

>> Perspective p. 639

- 662 **Quantum Correlations in Optical Angle-Orbital Angular Momentum Variables**

J. Leach et al.

Strong quantum correlations are induced between the angular position and angular momentum of two photons.

- 665 **MESSENGER Observations of Extreme Loading and Unloading of Mercury's Magnetic Tail**

J. A. Slavin et al.

Relative to Earth, Mercury's magnetospheric substorms are more intense and occur on shorter time scales.

- 668 **Evidence for Young Volcanism on Mercury from the Third MESSENGER Flyby**

L. M. Prockter et al.

Volcanism and associated deformation on Mercury may have lasted well into the last half of the history of the solar system.

- 672 **Mercury's Complex Exosphere: Results from MESSENGER's Third Flyby**

R. J. Vervack Jr. et al.

Mercury's exosphere is more varied and more intertwined with its magnetospheric environment than previously thought.

- 676 **Host Phylogeny Constrains Cross-Species Emergence and Establishment of Rabies Virus in Bats**

D. G. Streicker et al.

Rabies virus' innate capacity to replicate and adapt cannot overcome host genetic barriers to cross-species transfer.

- 679 **An Emerging Disease Causes Regional Population Collapse of a Common North American Bat Species**

W. F. Frick et al.

Like the passenger pigeon, millions of little brown bats face the possibility of rapid extinction, this time from disease.

>> Perspective p. 634; Science Podcast

- 682 **Sex-Specific Parent-of-Origin Allelic Expression in the Mouse Brain**

C. Gregg et al.

The relative contributions of the paternal and maternal genomes differ in distinct brain regions and also in males and females.

>> Perspective p. 636; Research Article p. 643

- 686 **Nonlinear Elasticity and an 8-nm Working Stroke of Single Myosin Molecules in Myofilaments**

M. Kaya and H. Higuchi

Single-molecule measurements refine our understanding of how muscle myosin works.

- 689 **Long Noncoding RNA as Modular Scaffold of Histone Modification Complexes**

M.-C. Tsai et al.

The long noncoding RNA HOTAIR binds two distinct protein complexes that modify chromatin and repress transcription.

- 693 **FAN1 Acts with FANCI-FANCD2 to Promote DNA Interstrand Cross-Link Repair**

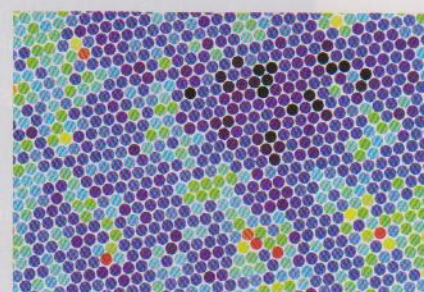
T. Liu et al.

The nuclease FAN1 acts with Fanconi anemia proteins to help repair damaged DNA.

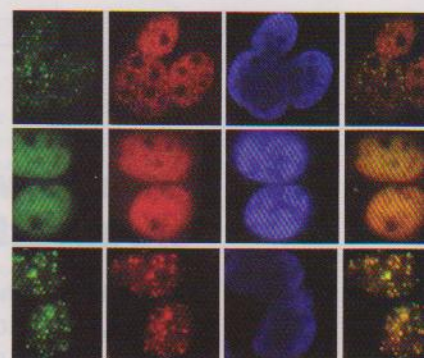
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## SCIENCEONLINE

## SCIENCEEXPRESS

[www.sciencexpress.org](http://www.sciencexpress.org)

### Strange Metal Transport Realized by Gauge/Gravity Duality

T. Faulkner et al.

Black hole theory is used to develop a mathematical description of a class of metals with unusual electronic properties.

10.1126/science.1189134

### The Chlorine Isotope Composition of the Moon and Implications for an Anhydrous Mantle

Z. D. Sharp et al.

The range of chlorine isotope values of the Moon is distinct from those of Earth and meteorites, indicating that the Moon is dry.

10.1126/science.1192606

»» Science Podcast

### Aryl Hydrocarbon Receptor Antagonists

Promote the Expansion of Human Hematopoietic Stem Cells

A. E. Bortone et al.

The identification of a mechanism for ex vivo amplification may facilitate clinical application of hematopoietic stem cell therapies.

10.1126/science.1191536

### Structural Basis for Activation of Class Ib Ribonucleotide Reductase

A. K. Boud et al.

A single protein activates two different metallofactors by distinct chemistries.

10.1126/science.1190187

### Glutamine Deamidation and Dysfunction of Ubiquitin/NEDD8 Induced by a Bacterial Effector Family

J. Cai et al.

Pathogenic bacterial proteins interfere with eukaryotic ubiquitination pathways to induce cytopathic effects.

10.1126/science.1193844

## SCIENCENOW

[www.sciencenow.org](http://www.sciencenow.org)

Highlights From Our Daily News Coverage

### Western Diet Tied to Intestinal Disease and Allergies

Gut bacteria may make people in developed countries more prone to a variety of maladies.

### Orangutans Go Green

Apes are amazingly energy efficient for their size.

### Marijuana Time Warp

Active ingredient in cannabis disrupts the body's internal clock.

## SCIENCE SIGNALING

[www.sciencesignaling.org](http://www.sciencesignaling.org)

The Signal Transduction Knowledge Environment

### RESEARCH ARTICLE: HCMV-Encoded Chemokine Receptor US28 Mediates Proliferative Signaling Through the IL-6–STAT3 Axis

E. Slinger et al.

## PODCAST

M. J. Smit and A. M. VanHook

A viral G protein–coupled receptor may initiate a positive feedback loop to promote tumor proliferation and vascularization.

### RESEARCH ARTICLE: The Nonphagocytic NADPH Oxidase Duox1 Mediates a Positive Feedback Loop During T Cell Receptor Signaling

J. Kwon et al.

Reactive oxygen species enhance T cell receptor signaling by promoting the phosphorylation of a proximal kinase.

## SCIENCE CAREERS

[www.sciencereers.org/career\\_magazine](http://www.sciencereers.org/career_magazine)

Free Career Resources for Scientists

### Taken for Granted: Creating Their Own Credibility

B. L. Benderly

A nonprofit founded and run by a group of independent researchers has permitted decades of scientific work.

### Scientist Dads Step Up

V. Venkatraman

Although women still do most of the parenting, some scientist dads are taking on the role of primary caregiver.

## SCIENCE TRANSLATIONAL MEDICINE

[www.sciencetranslationalmedicine.org](http://www.sciencetranslationalmedicine.org)

Integrating Medicine and Science

### PERSPECTIVE: Pinning Down the Origin of Prostate Cancer

D. Moscatelli and E. L. Wilson

Two distinct cell types give rise to prostate cancer, which might cause differences in the resulting tumor's behavior.

### PERSPECTIVE: A Microbe-Dependent

Viral Key to Crohn's Box

D. A. Peterson and P. J. Turnbaugh

Multiple facets of the human microbiome must be considered when deciphering complex diseases such as Crohn's.



## SCIENCE SIGNALING

How HCMV infection promotes cancer.

### RESEARCH ARTICLE: Pathway-Based Identification of Biomarkers for Targeted Therapeutics—Personalized Oncology with PI3K Pathway Inhibitors

J. N. Andersen et al.

Drug-specific modulation of an oncogenic signaling pathway can help predict tumor sensitivity to candidate drugs.

### RESEARCH ARTICLE: Ferroportin and Iron Regulation in Breast Cancer Progression and Prognosis

Z. K. Pinnix et al.

An iron efflux pump is a pivotal protein in breast cancer biology and a strong and independent predictor of breast cancer prognosis.

## SCIENCE PODCAST

[www.sciencemag.org/multimedia/podcast](http://www.sciencemag.org/multimedia/podcast)

Free Weekly Show

Download the 6 August Science Podcast to hear about bats threatened by white-nose syndrome, Arctic methane, the water content of the Moon's interior, and more.

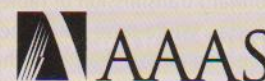
## SCIENCE INSIDER

[news.sciencemag.org/scienceinsider](http://news.sciencemag.org/scienceinsider)

Science Policy News and Analysis

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